April 26, 1888.

Professor G. G. STOKES, D.C.L., President, in the Chair.

The Presents received were laid on the table, and thanks ordered for them.

The following Papers were read:—

I. "On the Coagulation of the Blood." Preliminary Communication. By W. D. HALLIBURTON, M.D., B.Sc., Assistant Professor of Physiology, University College, London. Communicated by Professor E. A. SCHÄFER, F.R.S. (From the Physiological Laboratory, University College, London.) Received March 20, 1888.

[Publication deferred.]

II. "On the Development of the Electric Organ of *Raia batis*." By J. C. EWART, M.D., Regius Professor of Natural History, University of Edinburgh. Communicated by J. BURDON SANDERSON, F.R.S. Received March 21, 1888.

(Abstract.)

The paper consists of a short description of the electric organs found in the skate genus, and of an account of the development of the electric organ of the common grey skate (*Raia batis*).

It is shown that while in some skates (*e.g.*, *Raia batis* and others) the organ is made up of disk-shaped bodies, in others (*e.g.*, *Raia fullonica*)it consists of numerous cup-shaped structures provided with long or short stems.

The disks (with the development of which the paper chiefly deals) consist essentially of three layers, viz., (1) an electric plate in front in which the nerves end; (2) a striated layer which supports the electric plate; and (3) an alveolar layer, posterior to which is a thick cushion of gelatinous tissue. Each disk is formed in connexion with a muscular fibre. In young embryos there is no indication of an electric organ, but in an embryo 6 or 7 cm. in length, some of the muscular fibres at each side of the notochord are found in process of conversion into long slender clubs having their heads nearest the root of the tail.

The club-stage having been reached, the muscular fibre next

assumes the form of a mace, and later the anterior end further expands to form a relatively large disk, while the remainder of the original fibre persists as a slender ribbon-shaped appendage. As the head of the club enlarges to form a disk, it passes through an indistinct cup stage, which somewhat resembles the cups of the adult *Raia fullonica*, hence it may be inferred that in *Raia fullonica* the organ has been arrested in its development. The conversion of the muscular fibre into a club is largely caused by the increase at its anterior end of muscle corpuscles. These corpuscles eventually arrange themselves, either in front of the head of the club, to give rise to the electric plate, or they migrate backwards to form at the junction of the head of the club with its stem the alveolar layer. The striated layer, which is from the first devoid of nuclei, seems to be derived from the anterior striated portion of the club.

The gelatinous tissue between the disks and the connective tissue investing them, are derived from the embryonic connective tissue developing disks.

III. "On the Occurrence of Aluminium in Certain Vascular Cryptogams." By A. H. CHURCH, M.A., F.C.S. Communicated by Dr. J. H. GILBERT, F.R.S. Received March 29, 1888.

Most of the older and fairly complete analyses of plant-ashes disclosed the presence of alumina in sensible quantities. Gradually, however, as analytical methods became more exact, it was generally recognised that this constituent had been derived from extraneous sources and not from the plants themselves; alumina had in fact been introduced by the employment of glass and porcelain vessels, of impure reagents, and of imperfectly cleansed vegetable products. Even when traces of this oxide were obtained in analyses conducted under the most favourable conditions, an adventitious origin was assigned to them, and so the item of alumina disappeared entirely from the tables of the constituents of plant-ashes. Yet there were some conspicuous exceptions, although these were confined to certain cryptogams. For Ritthausen in 1851 ('Journ. Prakt. Chem.,' vol. 53, p. 413) found "much alumina" in the ash of *Lycopodium complanatum*, Linn., while Alderholdt in 1852 ('Ann. Chem. Pharm.,' vol. 82, p. 111) determined the percentage of alumina in the ash of the same Lycopodium to be 51·85 in the plant when gathered in March, and 57·36 when collected in November. The same chemist found 26·65 per cent. of alumina in the ash of *Lycopodium clavatum*. Again, in 1856, Solms-Laubach found ('Ann. Chem. Pharm.,' vol. 100, p. 297) in the ash of *L. clavatum* 27 per cent. and in the ash of *L. complana-*